LISTING OF THE CLAIMS:

1. (Currently Amended) A method of monitoring the presence of one or more chromophores in a sample of biological tissue, which method comprises[[;]] :

illuminating an area of such tissue sample by projecting light from a light source;

receiving light remitted by the illuminated area of tissue at a photo-receptor;

spectroscopically analyzing the light projected from the light source and the remitted light received by the photo-receptor and utilizing said analysis to generate data indicative of~~;~~ ~~analyzing the difference~~ differences between ~~incident~~ light projected from the light source and the remitted light ~~and obtaining data indicative of the analysis~~;

using the generated data to define a parameter of the tissue;

processing the generated data ~~normalizing the data to a standard value of that parameter~~ using a predictive mathematical model of the optical properties of the biological tissue to normalize the defined parameter defined by the generated data to a standard value of that parameter; and

~~comparing variations in the intensity and spectral characteristics of the normalized data with data representing a datum sample of intensity and spectral characteristics of light remitted by a sample of known structure~~ measuring at least one further parameter of the tissue using said processed data processed to normalize the defined parameter defined by the generated data to a standard value.

Claims 2-4 (Canceled)

5. (Currently Amended) A method of deriving data relating to the presence and/or depth and/or concentration of any chromophore selected from the group consisting of: melanin, blood, haemoglobin, oxy-haemoglobin, bilirubin, tatoo pigments and dyestuffs, keratin, collagen and hair, which method comprises:

illuminating an area of such tissue sample by projecting light from a light source[[,]] ;

receiving light remitted by the illuminated area of tissue at a photo-receptor[[,]] ;

spectroscopically analyzing the light projected from the light source and the remitted light received by the photo-receptor and utilizing said analysis to generate data indicative of ~~analyzing the~~ differences between ~~incident~~ light projected from the light source and the remitted light; ~~and the remitted light and obtaining data indicative of the analysis,~~

using ~~a portion of~~ the generated data to define a parameter of the tissue;

processing the generated data using a predictive mathematical model of the optical properties of the biological tissue to normalize the defined parameter defined by the generated data to a standard value of that parameter; and

~~normalizing the data to a standard value of that parameter using a predictive mathematical model of the optical properties of the tissue and, the normalised further portion of data with data representing a datum sample of intensity and spectral characteristics of light remitted by a sample of tissue of known structure~~

measuring at least one further parameter of the tissue relating to the presence and/or depth and/or concentration of any chromophore selected from the group consisting of: melanin, blood, hemoglobin, oxy-hemoglobin, bilirubin, tattoo pigments and dyestuffs, keratin, collagen and hair using said processed data processed to normalize the defined parameter defined by the generated data to a standard value.

Claims 6-7 (Canceled)

8. (Previously Presented) A method according to claim 1 applied for non-invasive monitoring of the presence of one or more said chromophores in the tissue sample.

9. (Previously Presented) A method according to claim 8 applied for controlling a treatment which involves the irradiation of a region of tissue with treatment light of predetermined spectral characteristics, wherein the absorption characteristics of tissue supervening the region to be treated for the treatment light are measured and used in calculating a required exposure of the tissue to the treatment light.

10. (Previously Presented) A method according to claim 8 applied for predicting the outcome of a treatment which involves the irradiation of a region of tissue with treatment light of predetermined spectral characteristics, wherein the absorption characteristics for the treatment light of the tissue region to be treated and of tissue supervening the region to be treated are measured and used in calculating a required therapeutically effective exposure of the tissue to the treatment light, and the required exposure and the absorption characteristics of the supervening tissue are used to predict potential destruction or scarring of the supervening tissue by such exposure.

11. (Previously Presented) A method according to claim 1 applied for endoscopic monitoring of the presence of one or more said chromophores in the tissue sample.

12. (Previously Presented) A method according to claim 6 applied for endoscopic monitoring of the presence of one or more said chromophores in the tissue sample.

13. (Previously Presented) A method of non-invasively analyzing tissue structure, comprising the steps of:

(i) measuring red or infrared radiation from at least one location in an area of tissue under investigation so as to give an indication of any layered structure in said area;

(ii) measuring the tissue color co-ordinates at said at least one location in said area of tissue;

(iii) using data obtained in measuring steps (i) and (ii) to calculate corrected tissue color co-ordinates in respect of said area which corresponds to a predetermined thickness of said layered structure, and;

(iv) comparing the corrected tissue color co-ordinates obtained in step (iii) with a reference color co-ordinate range for healthy tissue having a known layered structure of the same predetermined thickness.

14. (Previously Presented) A method according to claim 13, wherein said layered structure comprises a layer of collagen.

15. (Previously Presented) A method according to claim 13 where the light in section (i) extends across the UV and/or visible and/or IR regions.

16. (Previously Presented) A method according to claim 13, comprising the additional step of;

(v) identifying corrected tissue color co-ordinates which lie outside the reference color co-ordinate range.

17. (Previously Presented) A method according to claim 16, comprising the additional steps of;

(vi) comparing the degree of deviation of the corrected tissue color co-ordinates which lie outside the reference color co-ordinate range with generalized levels of deviation from a reference color co-ordinate range known to be associated with differing abnormalities in said tissue, and;

(vii) using the tissue color co-ordinates to assess the degree of abnormality of said tissue.

18. (Previously Presented) A method according to claim 13, comprising of additional steps of

(vi) calibrating the corrected tissue color co-ordinates with the corrected tissue co-ordinates of at least one tissue location having color co-ordinates lying within said reference color co-ordinate range for normal tissue;

(vii) using the tissue color co-ordinates to assess the degree of abnormality of said tissue.

19. (Previously Presented) A method according to claim 13, wherein an independent measurement of the level of epidermal melanin is made.

20. (Previously Presented) A method according to claim 18, wherein said calibration in step (vi) includes estimating the level of epidermal melanin at said location by reference to epidermal melanin levels calculated within at least one normal skin region adjacent said location.

21. (Previously Presented) A method according to claim 17, wherein said calibration in step (vi) includes measuring epidermal melanin levels at said location by assessing the deviation at the blue end of the spectrum at said location from the reference color co-ordinate range for normal skin.

22. (Previously Presented) A method according to claim 16, wherein the tissue color co-ordinates at said at least one location in said area of tissue are measured in a manner which is blind to the presence of melanin.

23. (Previously Presented) A method according to claim 16 where the properties of polarized light are used to remove the effects of epidermal melanin.

24. (Previously Presented) A method according to claim 13, wherein in step (i), a single infrared image at a wavelength of greater than about 1100 nm is obtained for the or each said location.

25. (Previously Presented) A method according to claim 16, wherein in step (i) two red or infrared images. each at a different wavelength, are obtained for each of said locations, whereby to enable the effect of the presence of epidermal melanin and dermal blood and collagen to be accounted for in the calculation of step (iii).

26. (Previously Presented) A method according to claim 16, wherein in step (i) two infrared images, each at a different wavelength, are obtained for each of said locations, thereby to enable the effect of the presence of epidermal melanin and dermal blood to be accounted for in the calculation of step (iii).

27. (Previously Presented) A method according to claim 25, wherein said infrared image(s) is/are obtained using infrared photographic film, or laser(s)or by spectral analysis.

28. (Previously Presented) A method according to claim 13, wherein the reference color co-ordinate range for normal tissue at the predetermined collagen layer thickness referred to in step (iv) is obtained as a curved surface lying within a three-dimensional color space, with a first bounding axis relating to the amount of a first chromophore within the collagen layer and a second bounding axis relating to the amount of a second chromophore within the collagen layer.

29. (Previously Presented) A method according to claim 28, wherein said collagen layer is the papillary dermis, said first chromophore is epidermal melanin and said second chromophore is blood.

30. (Previously Presented) A method according to claim 28, wherein said three-dimensional color space is selected from LMS, RGB and UV G IR color spaces.

31. (Previously Presented) A method according to claim 13, wherein the skin color co-ordinates of step (ii) are acquired from an image using the same lighting conditions and the same calibration set-up as used to produce the healthy skin reference color co-ordinate range.

32. (Previously Presented) A method according to claim 13, wherein the skin color co-ordinates of step (ii) are acquired from an image using different lighting conditions than used to obtain the healthy skin reference color co-ordinate range, and a white standard or other correction factor is used to allow calibration of the image with the reference color co-ordinate range.

33. (Previously Presented) A method according to claim 13 of deriving data relating to the presence, depth, and concentration of chromophores and creating and displaying a map thereof.

34. (Previously Presented) A method of mapping the papillary surface of an area of the dermis which comprises illuminating the surface of the skin over that area with light and monitoring the intensity of the light remitted from along at least one line or sequence of points, the light having a wavelength sufficiently far into the infra-red that its absorption by melanin and blood is negligible, and deriving therefrom a theoretical intensity of remitted light which is independent of the presence of melanin or blood, and from the remitted light intensity deriving a signal corresponding to the concentration of collagen within the papillary dermis along the or each line or at each point, and producing a contoured image in which the apparent elevation of any point is dependent upon the strength of such signal.

35. (Currently Amended) Apparatus for monitoring the presence of one or more chromophores in a biological tissue sample, which apparatus comprises:

a light source for projecting light to illuminate an area of such tissue sample,

a ~~photo receptor~~ photo-receptor for receiving light remitted by ~~the illuminated~~ an area of tissue~~, and~~ illuminated by said light source;

a spectroscopic analyzer for ~~analysing~~ analyzing light projected from the light source and ~~the differences between incident light and~~ remitted light ~~and obtaining data~~ received by the photo-receptor and utilizing said analysis to generate data indicative of ~~that analysis,~~ the differences between light projected from the light source and the remitted light;

a processor for ~~using a portion of that~~ processing data generated by said spectroscopic analyzer to define a parameter of the tissue and ~~for normalizing the data to a standard value of the parameter~~ to process the generated data using a predictive mathematical model to normalize the defined parameter defined by the data generated by the spectroscopic analyzer to a standard value of that parameter[[;]] and ~~a comparator for comparing variations in the intensity and spectral characteristics of the remitted light of the normalized further portion of the data with respect of the intensity and spectral characteristics of the projected light at different wavelengths and with data representing a datum sample of intensity and spectral characteristics of light remitted by a reference sample of known structure and a signal emitter for emitting a control signal in response to any such variations~~ for utilizing data processed to normalize the defined parameter to measure at least one further parameter of the tissue and generate a control signal on the basis of said least one further parameter of the tissue .

Claims 36-41 (Canceled)

42. (Previously Presented) Apparatus according to claim 35, wherein means is provided for passing a said control signal to one or more of the following: a display device such as a display monitor, a printer, or a medical laser or other treatment device or apparatus.

43. (Currently Amended) Apparatus according to claim 35, wherein ~~means is provided for illuminating~~ said light source is arranged to illuminate an area of tissue with light having a wavelength in excess of 600nm.

44. (Currently Amended) Apparatus according to claim 43, wherein ~~means is provided for monitoring~~ said photo-receptor is operable to monitor light of wavelengths in the 800 to 1000 nm band and the 600 to 800 nm band.

45. (Currently Amended) Apparatus according to claim 35, wherein said light source, photo-receptor and spectroscopic analyzer ~~means~~ are together adapted to ~~give a result~~ measure at least one further parameter which is blind to the effects of melanin.

46. (Currently Amended) Apparatus according to claim 35, wherein ~~means is provided for monitoring~~ said photo-receptor is operable to monitor the intensity of the light remitted from a plurality of lines or a two-dimensional array of points.

47. (Currently Amended) Apparatus according to claim 35, wherein ~~means is provided for monitoring~~ said photo-receptor is operable to monitor the intensity of the light remitted with a resolution of at least 20 lines or dots per mm.

48. (Currently Amended) Apparatus according to claim [[36]] 35, wherein an image of remitted light is captured using a digital camera in which use is made of a charge coupled device measuring 20×15 mm or less with a resolution of 800×600 pixels or more.

49. (Currently Amended) Apparatus according to claim 35, wherein a light guide of which at least part is flexible is provided for conducting light between said light source, said tissue sample and said photo-receptor.

50. (Currently Amended) Apparatus according to Claim 35, wherein an endoscope is provided for conducting light between said light source, said tissue sample and said photo-receptor.

Claim 51 (Canceled)

52. (Previously Presented) Apparatus according to claim 35, wherein means is provided for varying the size of the area of tissue monitored.

Claim 53-63 (Canceled)

64. (Previously Presented) A method of mapping the papillary surface of an area of the dermis which comprises illuminating the surface of the skin over that area with light and monitoring the intensity of the light remitted from along at least one line or sequence of points, the light having at least two wavelengths of which at least one is in excess of 600nm and deriving therefrom a theoretical intensity of remitted light which is independent of the presence of melanin or blood, and from the remitted light intensity deriving a signal corresponding to the concentration of collagen within the papillary dermis along the or each line or at each point, and producing a contoured image in which the apparent elevation of any point is dependent upon the strength of such signal.

65. (Previously Presented) Apparatus for mapping the papillary surface of an area of the dermis which comprises a light source illuminating the surface of the skin over that area with light which has at least two wavelengths of which at least one is in excess of 600 nm, means for monitoring the intensity of the light remitted along at least one line or sequence of points, and deriving therefrom an intensity or theoretical intensity of remitted light which is independent of the presence of melanin or blood, and means for deriving a signal from the remitted light intensity corresponding to the concentration of collagen within the papillary dermis along the or each line or at each point, and for producing a contoured image in which the apparent elevation of any point is dependent upon the strength of such signal.

66. (Previously Presented) A method of non-invasive monitoring the presence of one or more chromophores in a sample of biological tissue, and controlling a treatment which involves the irradiation of a region of tissue with treatment light of predetermined spectral characteristics which method comprises
illuminating an area of such tissue sample by projecting light from a light source, receiving light remitted by the illuminated area of tissue at a photo-receptor, spectroscopically analyzing the remitted light, and comparing variations in the intensity and spectral characteristics of the remitted light with respect to the intensity and spectral characteristics of the projected light and with data representing a datum sample of intensity and spectral characteristics of light remitted by a sample of tissue of known structure and wherein the absorption characteristics of tissue supervening the region to be treated for the treatment light are measured and used in calculating a required exposure of the tissue to the treatment light.

67. (Previously Presented) A method of non-invasive monitoring the presence of one or more chromophores in a sample of biological tissue and for predicting the outcome of a treatment which involves the irradiation of a region of tissue with treatment light of predetermined spectral characteristics, which method comprises illuminating an area of such tissue sample by projecting light from a light source, receiving light remitted by the illuminated area of tissue at a photo-receptor, spectroscopically analyzing the remitted light, and comparing variations in the intensity and spectral characteristics of the remitted light with respect to the intensity and spectral characteristics of the projected light and with data representing a datum sample of intensity and spectral characteristics of light remitted by a sample of tissue of known structure, wherein the absorption characteristics for the treatment light of the tissue region to be treated and of tissue supervening the region to be treated are measured and used in calculating a required therapeutically effective exposure of the tissue to the treatment light, and the required exposure and the absorption characteristics of the supervening tissue are used to predict potential destruction or scarring of the supervening tissue by such exposure.

68. (New) Apparatus for monitoring the presence of individual chromophores in a tissue sample, said apparatus comprising:

a light source operable to illuminate an area of a tissue sample with different wavelengths of light;

a photo-receptor arranged to receive light remitted by an area of a tissue sample illuminated by said light source; and

a spectroscopic analyzer operable to utilize the spectral characteristics of remitted light received by said photo-receptor and the spectral characteristics of light projected by said light source to identify the presence of said one or more chromophores within the area of the illuminated issue sample from which remitted light is received by said photo-receptor, wherein said spectroscopic analyzer comprises:

records of the spectral characteristics of light remitted by reference samples of tissue of known structure containing identified chromophores;

said spectroscopic analyzer being arranged to compare the spectral characteristics of remitted light received by said photo-receptor with said records to identify the record including spectral characteristics most closely matching the characteristics of said remitted light received by said photo-receptor and to output as an identification of individual chromophores present in the area of the illuminated issue sample from which remitted light is received by said photo-receptor an identification of the chromophores associated with said spectral characteristics by said record.

69. (New) Apparatus in accordance with claim 68, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of epithelial or epithelial and sub-epithelial tissue.

70. (New) Apparatus in accordance with claim 69, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of skin.

71. (New) Apparatus in accordance with claim 68, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of normal healthy tissue.

72. (New) Apparatus in accordance with claim 68, wherein said records comprise records of calculated estimated spectral characteristics of light remitted by samples of tissue of known structure containing identified chromophores.

73. (New) Apparatus in accordance with claim 68 wherein said light source is operable to selectively illuminate an area of a tissue sample with different wavelengths of light.

74. (New) Apparatus in accordance with claim 73, wherein said light source further comprises a set of filters for selective substitution into the tissue-incident light path in order to selectively illuminate an area of tissue with different wavelengths of light.

75. (New) Apparatus in accordance with claim 68, wherein said light source further comprises a polarizing filter arranged to polarize the light which illuminates said area of tissue.

76. (New) Apparatus in accordance with claim 75, further comprising a cross-polarizing filter arranged to cross-polarize light remitted from said area of tissue before it is received by said photo-receptor.

77. (New) Apparatus in accordance with claim 68, wherein said light source is operable to illuminate said area of tissue with light having a wavelength in excess of 600mm.

78. (New) Apparatus in accordance with claim 68, wherein said photo-receptor is operable to detect remitted light having wavelengths in the 800 to 1000 nm band and the 600 to 800 nm band.

79. (New) Apparatus in accordance with claim 68, wherein said photo-receptor is operable to receive light remitted from an array of points and said spectroscopic analyzer is operable to identify the presence of one or more individual chromophores at each of said points in said array.

80. (New) Apparatus in accordance with claim 79, wherein said photo-receptor is operable to receive light remitted from points with a resolution of at least 20 lines or dots per mm.

81. (New) Apparatus in accordance with claim 68 wherein said spectroscopic analyzer is operable to determine on the basis of the spectral characteristics of said received remitted light the depth of papillary dermis of a tissue sample being monitored and to identify the presence of said one or more individual chromophores within the area of the illuminated issue sample from which remitted light is received by said photo-receptor utilizing the spectral characteristics of said received remitted light and said determined depth of papillary dermis.

82. (New) Apparatus in accordance with claim 68 wherein said light source, photo-receptor and spectroscopic analyzer are together adapted to generate a signal indicative of the presence of chromophores which is substantially independent to the variation of spectral characteristics of remitted light arising due to the presence of a predetermined chromophore.

83. (New) Apparatus in accordance with claim 82 wherein said light source and photo-receptor are arranged to project and detect light at wavelengths which are substantially unaffected by the presence of a predetermined chromophore.

84. (New) Apparatus in accordance with claim 82 wherein said spectroscopic analyzer is arranged to process data indicative of the spectral characteristics of remitted light received by said photo-receptor to generate signals which are indicative of the presence of chromophores which are substantially independent of the variation in spectral characteristics arising due to the presence of a predetermined chromophore.

85. (New) Apparatus in accordance with claim 83 wherein said predetermined chromophore comprises chromophores selected from melanin, blood and tattoo pigments.

86. (New) Apparatus according to claim 68, further comprising a light guide of which a least part is flexible provided for conducting light between said light source, said tissue sample and said photo-receptor.

87. (New) Apparatus according to claim 86, wherein said light guide comprises an endoscope.

88. (New) Apparatus according to claim 86, wherein said light guide terminates in a head adapted for placing against an area of skin.

89. (New) Apparatus according to claim 68, wherein said light source is operable to vary the size of the area of tissue from which remitted light is received.

90. (New) Apparatus in accordance with claim 68, wherein said light source is operable to project light which either has a wavelength sufficiently far into the infra-red that its absorption by melanin and blood is negligible, or which has at least two wavelengths of which at least one is in excess of 600 nm, wherein said spectroscopic analyzer is operable to process data indicative of the spectral characteristics of remitted light received by said photo receiver to determine variations in spectral characteristics arising independently of variations due to the presence of melanin and blood and to utilize said determined independent variations in spectral characteristics to generate a signal indicative of the concentration of collagen within the papillary dermis of a tissue sample being monitored.

91. (New) Apparatus in accordance with claim 68 further comprising a signal generator operable to generate control signals on the basis of the determination of the presence of one or more chromophores in a tissue sample by said spectroscopic analyzer, wherein said control signals are operable to control an apparatus selected from a display monitor, a printer, a medical laser and a treatment device.

92. (New) Use of apparatus according to claim 68 for deriving data relating to the presence, depth, and concentration of chromophores and creating and displaying a map thereof.

93. (New) Use of apparatus according to claim 68 for deriving data relating to the presence, depth, and concentration of any chromophore selected from the group consisting of: melanin, blood, hemoglobin, oxy-hemoglobin, bilirubin, tattoo pigments or dyestuffs, keratin, collagen and hair.

94. (New) Use of apparatus according claim 68 for mapping the extent of a basal cell carcinoma.

95. (New) A method of monitoring the presence of individual chromophores in a sample of tissue, comprising:

storing records of the spectral characteristics of light remitted by reference samples of tissue of known structure containing identified chromophores;

illuminating an area of a tissue sample with different wavelengths of light using a light source;

receiving light remitted by the illuminated area of tissue at a photo-receptor;

comparing the spectral characteristics of remitted light received by said photo-receptor with said records to identify the record including spectral characteristics most closely matching the characteristics of said remitted light received by said photo-receptor; and

outputting as an identification of the individual chromophores present in the area of the illuminated tissue sample from which remitted light is received by said photo-receptor an identification of the chromophores associated with said spectral characteristics by said record.

96. (New) A method according to claim 95, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of epithelial or epithelial and sub-epithelial tissue.

97. (New) A method according to claim 96, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of skin.

98. (New) A method according to claim 95, wherein said records comprise records of the spectral characteristics of light remitted by reference samples of normal healthy tissue.

99. (New) A method according to claim 95, wherein said records comprise records of calculated estimated spectral characteristics of light remitted by samples of tissue containing identified chromophores.

100. (New) A method according to claim 95, further comprising the steps of: deriving data relating to the presence, depth, and concentration of chromophores; and creating and displaying a map thereof.

101. (New) A method according to claim 95, comprising: deriving data relating to the presence, depth, and concentration of any chromophore selected from the group consisting of: melanin, blood, hemoglobin, oxy-hemoglobin, bilirubin, tattoo pigments or dyestuffs, keratin, collagen and hair.

102. (New) A method according to claim 95 which further comprising: passing projected light and/or the remitted light through one or more filters and spectroscopically analyzing the remitted light such that the result of the analysis is independent of the presence of a predetermined chromophore in the tissue.

103. (New) A method according to claim 102 wherein said light source and photo-receptor are arranged to project and detect light at wavelengths which are substantially unaffected by the presence of said predetermined chromophore.

104. (New) A method according to claim 102 further comprising:

processing data indicative of the spectral characteristics of remitted light received by said photo-receptor to generate signals which are indicative of the presence of chromophores which are substantially independent of the variation in spectral characteristics arising due to the presence of said predetermined chromophores; and

comparing said processed data with said records to identify the record having the most closely corresponding spectral data.

105. (New) A method according to claim 102 wherein said predetermined chromophore comprises a chromophore selected from melanin, blood and tattoo pigments.

106. (New) A method according to claim 95, further comprising:

determining the depth of papillary dermis of a tissue sample being monitored on the basis of the spectral characteristics of said received remitted light; and

identifying the presence of individual chromophores within the area of the illuminated issue sample from which remitted light is received utilizing the spectral characteristics of said received remitted light and said determined depth of papillary dermis.

107. (New) A method according to claim 1, further comprising:

processing data processed to normalize the defined parameter defined by the generated data to a standard value generated data using a predictive mathematical model of the optical properties of the biological tissue to normalize a further parameter; and

measuring at least one parameter of the tissue using said processed data processed to normalize the further parameter to a standard value.

108. (New) A method in according to claim 1 wherein said sample of biological tissue comprises a sample of epithelial tissue having a thickness of papillary dermis, wherein using the generated data to define a parameter of the tissue comprises using the generated data to determine the thickness of papillary dermis of said tissue sample and processing the generated data using a predictive mathematical model of the optical properties of the biological tissue to normalize the defined parameter defined by the generated data to a standard value of that parameter comprises processing the generated data to generate data indicative of differences between incident light and light remitted by a tissue sample corresponding to the illuminated tissue sample where the papillary dermis of the sample is of a predetermined value.

109. (New) A method according to claim 5, further comprising:

processing data processed to normalize the defined parameter defined by the generated data to a standard value generated data using a predictive mathematical model of the optical properties of the biological tissue to normalize a further parameter; and

measuring at least one parameter of the tissue relating to the presence and/or depth and/or concentration of any chromophore selected from the group consisting of: melanin, blood, hemoglobin, oxy-hemoglobin, bilirubin, tattoo pigments and dyestuffs, keratin, collagen and hair using said processed data processed to normalize the further parameter to a standard value.

110. (New) A method of deriving data relating to the presence and/or depth and/or concentration of one of more chromophores in a sample of epithelial tissue having a thickness of papillary dermis, which method comprises:

illuminating an area of such tissue sample by projecting light from a light source;

receiving light remitted by the illuminated area of tissue at a photo-receptor;

spectroscopically analyzing the light projected from the light source and the remitted light received by the photo-receptor and utilizing said analysis to generate data indicative of differences between light projected from the light source and the remitted light;

using the generated data to determine the thickness of the papillary dermis of the tissue sample;

using the generated data, the determined thickness of the papillary dermis of the tissue sample and a predictive mathematical model of the optical properties of epithelial tissue to generate data indicative of differences between incident light and light remitted by a tissue sample corresponding to the illuminated tissue sample where the papillary dermis of the sample is of a predetermined value; and

measuring at least one further parameter of the tissue relating to the presence and/or depth and/or concentration of one or more chromophores in the illuminated tissue sample using said data indicative of differences between incident light and light remitted by a tissue sample corresponding to the illuminated tissue sample where the papillary dermis of the tissue sample is of a predetermined value.

111. (New) A method in accordance with claim 110 wherein said one or more chromophores comprise chromophores selected from the group consisting of: melanin, blood, hemoglobin, oxy-hemoglobin, bilirubin, tattoo pigments and dyestuffs, keratin, collagen and hair.